

WHAT IS CLAIMED IS:

1 1. For use in a transfer molding process of the type
2 that uses a transfer mold to encapsulate portions of an
3 integrated circuit within a molding compound, a method for
4 using a pre-formed film in said transfer molding process,
5 said method comprising the steps of:

6 providing a film of compliant material;

7 pre-forming said film of compliant material to conform
8 a shape of said film to a mold cavity surface of said
9 transfer mold; and

10 placing said pre-formed film of compliant material
11 within said transfer mold adjacent to said mold cavity
12 surface of said transfer mold.

1 2. The method as set forth in Claim 1 wherein said
2 step of pre-forming said film of compliant material is
3 carried out during said transfer molding process
4 immediately before said film is placed within said transfer
5 mold.

1 3. The method as set forth in Claim 1 wherein said
2 film is pre-formed to a shape that approximately conforms
3 to a shape of said mold cavity surface of said transfer
4 mold.

1 4. The method as set forth in Claim 1 wherein said
2 step of pre-forming said film of compliant material to
3 conform a shape of said film to a mold cavity surface of
4 said transfer mold comprises one of: embossing said film
5 and stamping said film.

1 5. The method as set forth in Claim 1 further
2 comprising the steps of:

3 placing said transfer mold over an integrated circuit
4 die on an integrated circuit substrate;

5 filling said mold cavity of said transfer mold with
6 liquefied molding compound;

7 allowing said molding compound to solidify; and

8 removing said transfer mold from said integrated
9 circuit die and said integrated circuit substrate after
10 said molding compound has solidified.

1 6. For use in a transfer molding process of the type
2 that uses a transfer mold to encapsulate portions of an
3 integrated circuit within a molding compound, a method for
4 using a pre-formed film in said transfer molding process,
5 said method comprising the steps of:

6 providing a tape made of a film of compliant material;
7 pre-forming a portion of said tape to conform a shape
8 of said portion of said tape to a mold cavity surface of
9 said transfer mold; and

10 placing said pre-formed portion of said tape within
11 said transfer mold adjacent to said mold cavity surface of
12 said transfer mold.

1 7. The method as set forth in Claim 6 further
2 comprising the steps of:

3 pre-forming a plurality of portions of said tape to
4 conform a shape of each of said plurality of portions of
5 said tape to said mold cavity surface of said transfer
6 mold; and

7 placing one of said plurality of portions of said tape
8 within said transfer mold adjacent to said mold cavity
9 surface of said transfer mold during a transfer molding
10 process.

1 8. The method as set forth in Claim 6 wherein said
2 step of pre-forming said portion of said tape is carried
3 out during said transfer molding process immediately before
4 said portion of said tape is placed within said transfer
5 mold.

1 9. The method as set forth in Claim 6 wherein said
2 portion of said tape is pre-formed to a shape that
3 approximately conforms to a shape of said mold cavity
4 surface of said transfer mold.

1 10. The method as set forth in Claim 1 wherein said
2 step of pre-forming said portion of said tape to conform a
3 shape of said portion of said tape to a mold cavity surface
4 of said transfer mold comprises one of: embossing said
5 portion of said tape and stamping said portion of said
6 tape.

1 11. The method as set forth in Claim 6 further
2 comprising the steps of:

3 placing said transfer mold over an integrated circuit
4 die on an integrated circuit substrate;

5 filling said mold cavity of said transfer mold with
6 liquefied molding compound;

7 allowing said molding compound to solidify; and

8 removing said transfer mold from said integrated
9 circuit die and said integrated circuit substrate after
10 said molding compound has solidified.

1 12. For use in a transfer molding process of the type
2 that uses a top half of a transfer mold and a bottom half
3 of a transfer mold to encapsulate portions of an integrated
4 circuit within a molding compound, a method for using a
5 pre-formed film in said transfer molding process, said
6 method comprising the steps of:

7 providing a first film of compliant material;

8 pre-forming said first film of compliant material to
9 conform a shape of said first film to a mold cavity surface
10 of said top half of said transfer mold;

11 placing said pre-formed first film of compliant
12 material within said top half of said transfer mold
13 adjacent to said mold cavity surface of said top half of
14 said transfer mold;

15 providing a second film of compliant material;

16 pre-forming said second film of compliant material to
17 conform a shape of said second film to a mold cavity
18 surface of said bottom half of said transfer mold; and

19 placing said pre-formed second film of compliant
20 material within said bottom half of said transfer mold
21 adjacent to said mold cavity surface of said bottom half of
22 said transfer mold.

1 13. The method as set forth in Claim 12 wherein said
2 step of pre-forming said first film of compliant material
3 is carried out during said transfer molding process
4 immediately before said first film is placed within said
5 top half of said transfer mold; and

6 wherein said step of pre-forming said second film of
7 compliant material is carried out during said transfer
8 molding process before said second film is placed within
9 said bottom half of said transfer mold.

1 14. The method as set forth in Claim 12 wherein said
2 first film is pre-formed to a shape that approximately
3 conforms to a shape of said mold cavity surface of said top
4 half of said transfer mold; and

5 wherein said second film is pre-formed to a shape that
6 approximately conforms to a shape of said mold cavity
7 surface of said bottom half of said transfer mold.

1 15. The method as set forth in Claim 12 wherein said
2 step of pre-forming said first film of compliant material
3 to conform a shape of said first film to a mold cavity
4 surface of said top half of said transfer mold comprises
5 one of: embossing said first film and stamping said first
6 film; and

7 wherein said step of pre-forming said second film of
8 compliant material to conform a shape of said second film
9 to a mold cavity surface of said bottom half of said
10 transfer mold comprises one of: embossing said second film
11 and stamping said second film.

1 16. The method as set forth in Claim 12 further
2 comprising the steps of:

3 placing said top half of said transfer mold and said
4 bottom half of said transfer mold around an integrated
5 circuit die on an integrated circuit substrate to form a
6 mold cavity around said integrated circuit die on said
7 integrated circuit substrate;

8 filling said mold cavity of said transfer mold with
9 liquefied molding compound;

10 allowing said molding compound to solidify; and

11 removing said transfer mold from said integrated
12 circuit die and said integrated circuit substrate after
13 said molding compound has solidified.

1 17. For use in a transfer molding process of the type
2 that uses a transfer mold to encapsulate portions of an
3 integrated circuit within a molding compound, a pre-formed
4 film of compliant material having a shape that conforms to
5 a shape of mold cavity surface of said transfer mold.

1 18. The film as set forth in Claim 17 wherein said
2 compliant material of said film may be deformed by one of:
3 embossing and stamping.

1 19. The film as set forth in Claim 17 wherein said
2 film comprises a silicone coated latex saturated paper
3 liner.

1 20. For use in a transfer molding process of the type
2 that uses a transfer mold to encapsulate portions of an
3 integrated circuit within a molding compound, a pre-formed
4 tape comprising a film of compliant material, said tape
5 comprising a plurality of portions wherein each portion of
6 said tape has a shape that conforms to a shape of a mold
7 cavity surface of said transfer mold.

1 21. The pre-formed tape as set forth in Claim 20
2 wherein said compliant material of said film may be
3 deformed by one of: embossing and stamping.

1 22. The tape as set forth in Claim 20 wherein said
2 film comprises a silicone coated latex saturated paper
3 liner.

1 23. For use in a transfer molding process of the type
2 that uses a top half of a transfer mold and a bottom half
3 of a transfer mold to encapsulate portions of an integrated
4 circuit within a molding compound,

5 a first pre-formed film of compliant material having
6 a shape that conforms to a shape of a mold cavity surface
7 of said top half of said transfer mold; and

8 a second pre-formed film of compliant material having
9 a shape that conforms to a shape of a mold cavity surface
10 of said bottom half of said transfer mold.

1 24. The first and second pre-formed film of compliant
2 material as set forth in Claim 23 wherein said compliant
3 material of said first and second pre-formed film may be
4 deformed by one of: embossing and stamping.

1 25. The first and second pre-formed film of compliant
2 material as set forth in Claim 23 wherein each of said
3 first and second pre-formed film comprises a silicone
4 coated latex saturated paper liner.

1 26. An integrated circuit manufactured in accordance
2 with the method of Claim 1.

1 27. An integrated circuit manufactured in accordance
2 with the method of Claim 6.

1 28. An integrated circuit manufactured in accordance
2 with the method of Claim 7.

1 29. An integrated circuit manufactured in accordance
2 with the method of Claim 12.